

CLAIMS

1. Butene-1 copolymers containing up to 40% by mol of ethylene and/or propylene derived units, characterized by the following properties determined by the methods reported in the description:
 - a) Product of the reactivity ratios $r_1 \cdot r_2 \leq 2$;
 - b) Content of butene-1 units in form of isotactic pentads (mmmm) > 98%; and
 - c) absence of 4,1 insertions of butene units.
2. The butene-1 copolymers according to claim 1 in which the content of (mmmm) is >99% in correspondence of $r_1 \cdot r_2 \leq 1$.
3. The butene-1 copolymers according to claim 1 characterized by the following features:
 - a) reactivity ratio $r_1 \cdot r_2 \leq 1.5$;
 - b) Content of butene-1 units in the form of isotactic pentads (mmmm) > 98.5%; and
 - c) absence of 4,1 insertions.
4. The butene-1 copolymers according to claim 3 having a PI in the range 3-10.
5. The butene-1 copolymers according to claim 1 having a content of ethylene and/or propylene derived units ranging from 0.1 to 35% by mol.
6. The butene-1 copolymers according to claim 5 having a content of ethylene and/or propylene derived units ranging from 0.5 to 30% by mol.
7. The butene-1 copolymers according to claim 6 wherein the comonomer is ethylene.
8. The butene-1 copolymers according to claim 6 wherein the comonomer is propylene.
9. The butene-1 copolymers according to claim 6 having a content of ethylene or propylene lower than about 3%.
10. The butene-1 copolymers according to claim 6 having a content of ethylene and/or propylene in the range of 2-15%.
11. The butene-1 copolymers according to claim 6 having a content of ethylene or propylene derived units equal to, or higher than, 12%.
12. The butene-1 copolymers according to claim 11 in which the comonomer is ethylene.
13. The butene-1 copolymers according to claim 11 characterized by the fact that they do not show a melting point at the thermal analysis.
14. A polymer composition comprising (A) from 1 to 99wt % of a butene-1 copolymer according to claim 1 and (B) from 1 to 99% of another polymeric component the said

percentages being referred to the sum of (A) and (B).

15. A polymer composition according to claim 14 in which the component (B) comprises an olefin (co)polymer.
16. A polymer composition according to claim 14 in which the component (B) is a ethylene containing (co)polymer, a propylene containing (co)polymer or their mixtures.
17. A polymer composition comprising:
 - (A) from 5 to 40%wt of the butene-1 copolymers according to claim 1 having from 1 to 15%by mol of ethylene or propylene; and
 - (B) from 60 to 95%wt of a propylene copolymer containing from 1 to 30 % by mol of ethylene and/or an α -olefin of formula $\text{CH}_2=\text{CHR}$, where R is a C2-C10 hydrocarbon group.
18. A polymer composition according to claim 17 in which said α -olefin is butene-1.
19. A polymer composition according to claim 18 in which the component (B) is selected from either (a) a propylene copolymer containing both ethylene and butene-1 wherein the content of ethylene is from 1 to 10% and the content of butene-1 is from 1 to 10% or (b) a propylene copolymer containing from 2 to 15% by mol of butene-1.
20. A polymer composition comprising (A) a butene-1 copolymer according to claim 1 not showing a melting point and (B) a butene-1 copolymer according to claim 1 showing a melting point.
21. A polymer composition according to claim 20 in which (A) is a butene-1/ethylene copolymer having a content of ethylene of higher than 10% and (B) is a butene-1/ethylene copolymer having a content of ethylene of less than 10%by mol.
22. A polymer composition comprising :
 - (i) from 5 to 25% wt of the butene-1 copolymer of the invention and
 - (ii) from 75 to 95%wt of an ethylene polymer; said percentages being based on the sum of (i)+(ii).
23. Manufactured articles obtained from the butene-1 copolymers or their blends according to any of the preceding claims.
24. Process for the preparation of the butene-1 copolymers according to any of claims 1-13 comprising copolymerizing butene-1 and ethylene and/or propylene in the

presence of a stereospecific catalyst comprising (A) a solid catalyst component comprising a Ti compound and an electron-donor compound selected from phthalates, supported on MgCl_2 ; (B) an alkylaluminum compound and, (C) an external electron-donor compound of formula $\text{R}_a^5\text{R}_b^6\text{Si}(\text{OR}^7)_c$, where a and b are integer from 0 to 2, c is an integer from 1 to 3 and the sum (a+b+c) is 4; R^5 , R^6 , and R^7 , are alkyl, cycloalkyl or aryl radicals with 1-18 carbon atoms optionally containing heteroatoms.

25. The process according to claim 24 wherein the external donor is hexyltrimethoxysilane.
26. Process according to claim 24 or 25 carried out in liquid butene-1.
27. Process according to claim 26 in which the co-polymerization is carried out in at least two reactors working under different reaction conditions.